BRIDGES AND BRIDGE COMPONENTS

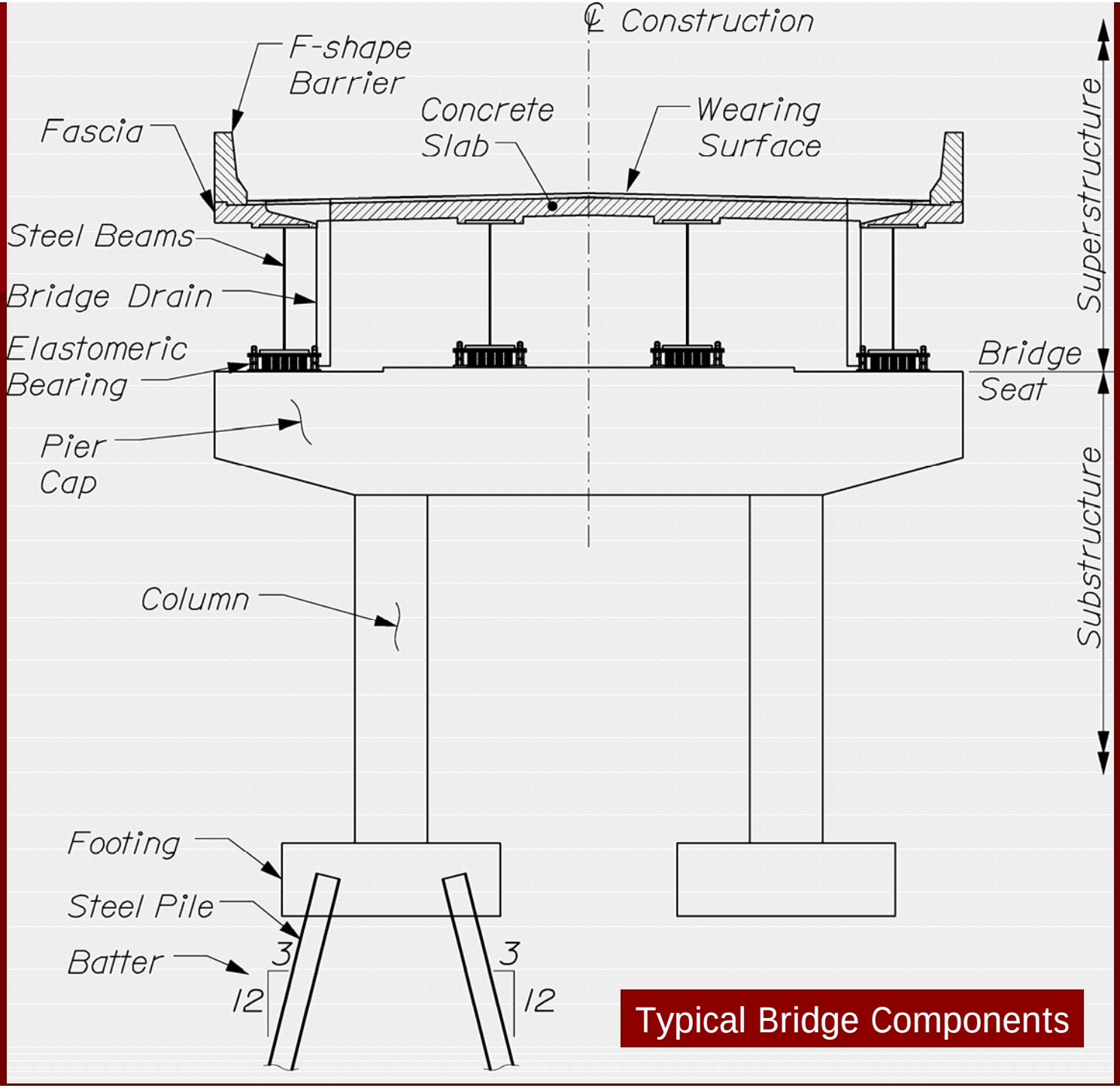
DEFINITIONS AND TYPES

MARTIN'S POINT BRIDGE
FALMOUTH - PORTLAND

MAINEDOT
Maine Department of Transportation

DEFINITIONS

- Superstructure
  - Beams or Main Load Carrying Elements
    - Steel or concrete girders
    - Segmental boxes
    - Suspension or cable-stayed
    - Trusses
  - Deck – typically concrete
  - Wearing Surface – bituminous or concrete
- Substructure
  - Piers
  - Abutments



Typical Bridge Components

APPLICABLE BEAM TYPES

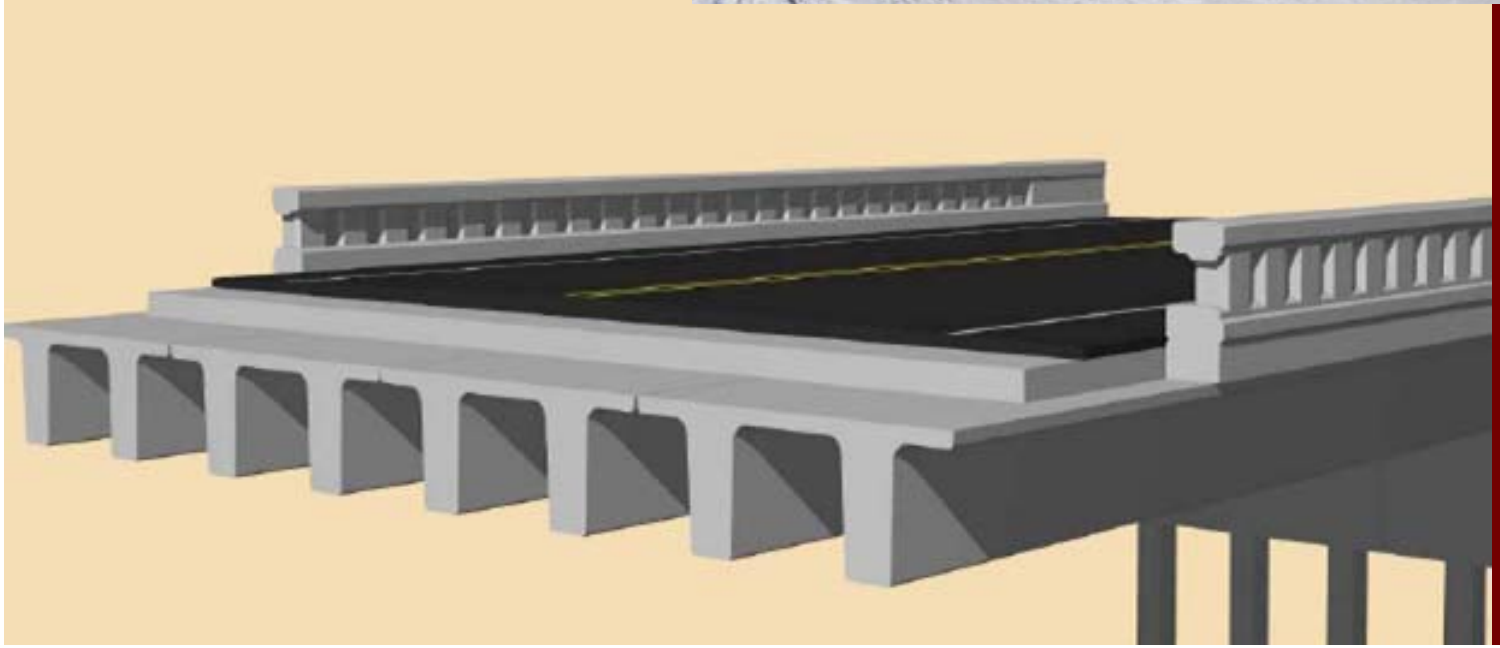
- Northeast Bulb Tee – precast, prestressed concrete

APPLICABLE BEAM TYPES

- Segmental Box – precast, post-tensioned concrete

APPLICABLE BEAM TYPES

- NEXT Beam – precast, prestressed concrete

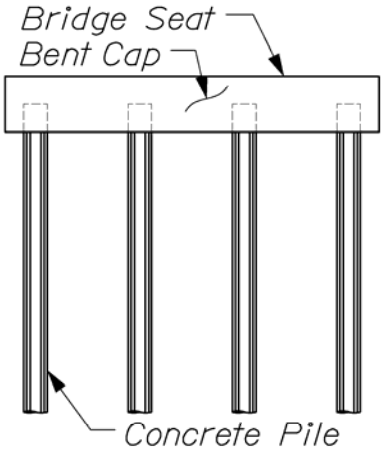


NON-APPLICABLE BEAM TYPES

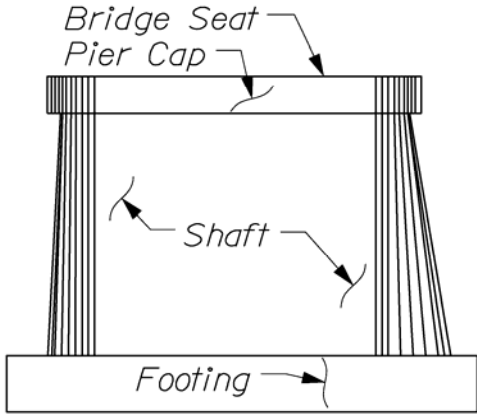
- Weathering Steel
  - Not suitable for marine environments
  - Painted or coated steel could be used, but would require more maintenance

- Timber
  - Not suitable because it is less durable and would require more maintenance

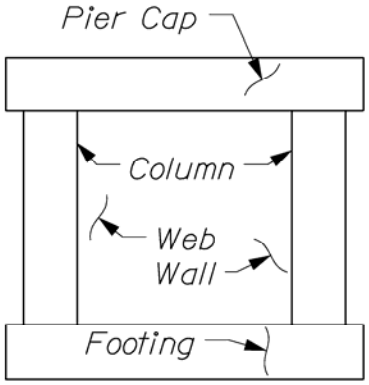
TYPICAL PIER TYPES



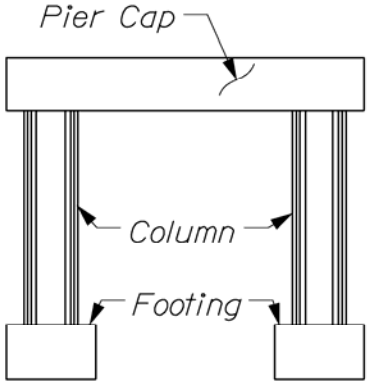
PILE BENT



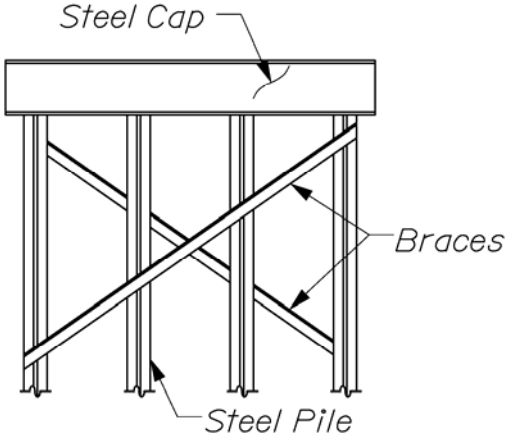
SOLID PIER



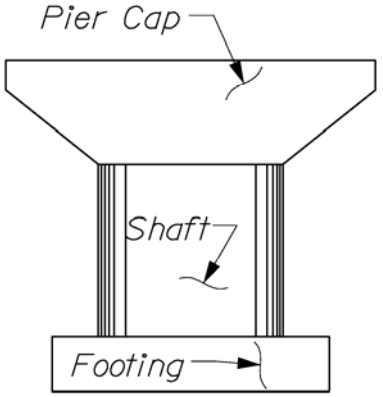
COLUMN PIER
WITH SOLID WEB WALL



COLUMN BENT
OR OPEN PIER



STEEL BENT



CANTILEVER PIER
OR HAMMERHEAD PIER

APPLICABLE PIER TYPES

- Pile Bents and Drilled Shafts

APPLICABLE PIER TYPES

- Cantilever or Hammerhead

- Flared Column

APPLICABLE PIER TYPES

- Solid Shafts

NON-APPLICABLE PIER TYPES

A steel bent pier is not suitable because it is labor intensive to build and will have high maintenance needs throughout its life.

APPLICABLE BRIDGE TYPES

Concrete Beams on Pile Bent Piers

APPLICABLE BRIDGE TYPES

Concrete Beams on Hammerhead Piers

APPLICABLE BRIDGE TYPES

Concrete Beams on Solid Shaft Piers
(haunched beam appearance may be a facade)

APPLICABLE BRIDGE TYPES

Constant Depth Segmental Box on Flared Columns

NON-APPLICABLE BRIDGE TYPES

A spandrel arch bridge is not warranted because it is better suited for a deep ravine or mountainous area with lots of exposed or very shallow bedrock to support the arch footings.

NON-APPLICABLE BRIDGE TYPES

A cable-stayed bridge is not warranted because it is better suited for crossing over a large boat/ship navigation channel.

NON-APPLICABLE BRIDGE TYPES

A suspension bridge is not warranted because it is better suited for crossing over a very large boat/ship navigation channel.

NON-APPLICABLE BRIDGE TYPES

A steel truss bridge is not warranted because it is labor intensive to build and will have high maintenance needs throughout its life.